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QUARTERLY MONITORING REPORT

September - November 1994

Fifth Year - Third Quarter

Prepared For:

**Walla Walla Shopping Center Associates
Westpark Towne Plaza
Boise, Idaho**

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QUARTERLY MONITORING REPORT

SEPTEMBER - NOVEMBER 1994

Fifth Year - Third Quarter

Westpark Towne Plaza

Walla Walla Shopping Center Associates

1.0 INTRODUCTION

Century West Engineering Corporation (CWEC) was retained by Walla Walla Shopping Center Associates (Walla Walla) to perform quarterly groundwater monitoring and daily operation and maintenance of the Westpark air stripper remediation system. The services include the measurement of groundwater levels, sampling of groundwater from the monitoring and pumping wells, evaluation and maintenance of the air stripper system, and the preparation of quarterly monitoring reports.

Quarterly groundwater monitoring is performed in order to observe the effectiveness of the remediation system and to monitor the upgradient property to determine if contamination is migrating onto the site from a known upgradient source. Tetrachloroethene (PCE) and trichloroethene (TCE) are the contaminants of concern.

1.1 Site Background

The Site is located in the Westpark area of Boise, Idaho (Figure 1 - Vicinity Map). The Westpark groundwater treatment system is operated pursuant to a voluntary Consent Order between Walla Walla and the Idaho Department of Health and Welfare. The requirements for operating and monitoring the treatment system are defined in Groundwater Remedial Action Plan for the Westpark Commercial Center (SRM, 1989). PCE contaminated groundwater is known to be present both

upgradient and down gradient of the Walla Walla site. A source area has been identified at the former location of the Van Waters & Rogers chemical distribution facility near the current location of Pier One Imports.

The treatment system consists of three 40-foot pumping wells, piping and wiring from the pumping wells to the treatment system, and a 300 gallon per minute air stripping treatment tower with a control panel. The corrective action monitoring network consists of 13 area monitoring wells, 3 pumping wells and two sampling ports at the groundwater treatment system. The Walla Walla air stripping treatment system is located near the southwest corner of the Target Store. Figure 2 - Westpark Towne Plaza Area Map shows the air stripper and pumping well locations. The groundwater monitoring network covers approximately 68 acres of the Westpark area. The PCE plume under lies approximately 12 acres of the Walla Walla site.

1.2 Project Transition to Century West Engineering Corp.

Special Resource Management, Inc (SRM) installed and operated the Walla Walla groundwater treatment system through September of 1994. CWEC was retained in October of 1994 to operate and monitor the system. During a transition period with SRM, CWEC obtained copies of project files, a magnetic file of the September 1994 Quarterly Report and miscellaneous sampling equipment and supplies. The final project transition with SRM took place on October 3, 1994 when CWEC and SRM conducted a joint walk through inspection of the site and the remediation system. All project keys were transferred to CWEC and SRM's emergency telephone number was removed from the air stripper fence.

2.0 TREATMENT SYSTEM OPERATION

2.1 Air Stripper Operation and Maintenance

The groundwater treatment system operated for 84 days during the Third Quarter of the Fifth Year. This equates to a 92.3 % time based operating factor (84 days out of 91 available days). The system had 7 days of required down time in the Third Quarter. It was down for 3 days while CWEC was evaluating pumping problems with WP2 and it was down for 4 days during a non-related construction project in the South Slough.

General system O & M inspections were conducted throughout the Third Quarter. SRM, Inc. was responsible for system operation through September of 1994 and they inspected the system 3 times. CWEC inspected the system and recorded pumping flows 17 times during October and November. An assessment of SRM's September data by CWEC determined that the system was not operating at full capacity at the time CWEC was retained to operate and monitor the remediation system. CWEC determined that the measured discharge volumes did not match the point-in-time flow reads taken during SRM's September inspections. The system was continuously cycling on and off due to pump problems with WP2. From October to November CWEC spent considerable time and resources repairing and adjusting the system to increase the treatment volumes.

2.2 Volume of Groundwater Treated

The total volume of Westpark groundwater treated through December 1, 1994 was 422,157,900 gallons. The volume of groundwater treated in the Third Quarter of the Fifth Year was approximately 17,947,740 gallons. Of the total volume treated since system start-up through December 1, 1994; 134,960,470 gallons (approximately 32%) have been treated from well WP-1; 151,098,050 gallons (approximately 36%) have been treated from well WP-2; and 136,099,220 gallons (approximately 32%) have been treated from well WP-3. Table 1 - Groundwater Treatment Summary Third Quarter Fifth Year summarizes the cumulated volume of treated groundwater from each of the remediation wells and the total combined system volume. The data presented in Table

1 is estimated from totalized readings on the effluent flow gauge and real time flows from each of the pumping well flow meters. Totals do not always add due to rounding in the volume tracking program.

During the Third Quarter of the Fifth Year approximately 17,947,740 gallons of contaminated groundwater were treated. Approximately 6,705,000 gallons or 37% came from WP1; 1,595,910 gallons or 9% came from WP2; and 9,646,670 gallons or 54% were pumped from WP3. The down time for WP2 resulted in the Third Quarter treatment volume of 17.9 million gallons being slightly less than an average operating quarter. Treatment volumes should increase during the Fourth Quarter since WP2 is now fully operational.

2.3 Down Time and System Repairs

The treatment system was temporarily shut down for three days during October, 1994 following a system assessment during the transition walk through inspection. CWEC found the effluent pump was cycling on and off at an unacceptable rate of once every 2 to 5 minutes. The cycling problem was found to be the result of inconsistent groundwater flows from pumping well WP2. The system was shut off on October 3, 1994 for evaluation. A pump subcontractor determined that the electrical supply wiring to WP2 was damaged/shorted and would require replacement. The effluent flows were adjusted to eliminate the pump cycling and the system was restarted on October 7, 1994. It operated for the remainder of October and most of November with only pumping wells WP1 and WP3 on line. The Idaho DEQ was notified of the system down time and the temporary shut down of WP2.

CWEC shut the system down again on November 13 at the request of a contractor who was doing construction work in the South Slough. The Idaho DEQ was contacted ahead of time by CWEC and the temporary shut down was approved by Idaho DEQ.

Several days prior to the shut down, the systems effluent meter had failed (locked up). CWEC obtained approval from Walla Walla for a new unit and it was installed during the November shut down period. The total calculated treatment volume as of November 13, 1994 was 418,959,800 gallons. This total groundwater treatment volume was estimated from individual pumping well flow meter rates because CWEC could not determine exactly when the effluent meter had failed. Total treatment volumes are now determined by adding 418,959,800 gallons to the new effluent meter readings. The system was restarted on November 18, 1994 after the ditch construction was completed.

CWEC prepared Walla Walla a cost estimate to replace the electrical wiring to WP2. The cost estimate and Scope of Work was approved by Walla Walla and submitted to Van Waters & Rogers (VWR) for review. VWR requested a second 1.5 inch diameter conduit for possible future use. CWEC amended the SOW to reflect the additional conduit and the WP2 wiring work was completed in November. WP2 was restarted on November 30, 1994. Figure 3 - As-Built Replacement Wiring for WP2, shows the location of the new electrical service for WP2.

Monitoring wells MW11 and MW14 were converted from stick-up to flush mount type installations during the Third Quarter. MW11 was modified due to the construction of the Gap store. MW14 was converted because Huntingdon was expanding their parking area. Table 2 - Fifth Year Operation Overview summarizes the repairs and/or adjustments made to the system during the first three quarters of the fifth operating year (Feb. 94 to Nov. 94).

3.0 CORRECTIVE ACTION MONITORING ACTIVITIES

3.1 Groundwater and Treatment System Sampling

On November 30 and December 1, 1994, CWEC conducted the Walla Walla quarterly corrective action monitoring activities. The sampling and laboratory analysis was completed in accordance with the Remedial Action Plan and other Idaho DEQ approved protocols. Monitoring activities included obtaining groundwater levels, collecting groundwater samples from 4 monitoring wells and 3 pumping wells, observing the condition of the air stripper packing, collecting treatment system water samples, and recording system flow volumes.

Two treatment system water samples were collected from the groundwater remediation system - one from the combined influent flow and one from the air stripper effluent flow. All samples were analyzed for PCE and TCE. Ten samples, one duplicate and one trip blank were submitted for laboratory analysis.

3.2 Groundwater Levels

Groundwater elevations were gauged during the November sampling event. The results of the gauging are presented in Table 3 - Quarterly Groundwater Elevations - Fifth Year. Groundwater levels were measured in 14 project wells this quarter. Several Chen-Northern wells which had been gauged during previous monitoring events are no longer available for use. The wells were sealed and abandoned by Huntingdon-Chen-Northern some time during the quarter. Closure of the Chen-Northern wells reduces the gauging points west of the air stripper pad.

CWEC did not gauge the Idaho DEQ wells located on and near the Boise Towne Square Mall site. These wells have been gauged in the past by SRM to establish the general area groundwater flow direction and gradient; however, Walla Walla is not required to monitor water levels in these wells.

On November 30 and December 1, 1994, depths to groundwater in the monitoring wells ranged from 12.00 feet to 19.84 feet below grade surface (bgs). The November groundwater levels were approximately two feet lower than the August levels. The levels are typical for November and represent the seasonal drop in the water table due to the end of the irrigation season. The lowest November levels were recorded during the drought of 1992.

The November 30, 1994 measurements indicate an apparent area flow to the northwest with an approximate gradient of 0.0022 foot per foot. The November groundwater gradient contours are estimated in Figure 4 - Groundwater Elevation Contour Map. WP2 was operational for less than 24 hours when the quarterly measurements were made.

3.3 Groundwater Analysis

CWEC collected groundwater samples from four monitoring wells - MW9, MW16, MW18, and MW21. Samples were also collected from the combined influent (WP-123I) and combined effluent (WP-123E) at the air stripper. A duplicate sample was collected from monitoring well MW9 and an equipment blank and a trip blank were also analyzed for purposes of QA/QC.

All samples, with the exception of the duplicate sample, were analyzed by Century Testing Laboratories (CTL) of Bend, Oregon utilizing protocol established in EPA Method 624/8240. Split samples from the effluent (WP-123E) and monitoring wells MW16 and MW9 were also submitted to Hibbs Analytical Laboratories (HAL) of Boise, Idaho, as was the project duplicate sample from monitoring well MW9. Hibbs Analytical Laboratories utilized EPA Method 601/8010 to determine PCE and TCE concentrations in these four samples.

Prior to November's sampling, CWEC had notified the Idaho DEQ and requested that Idaho DEQ approve the use of EPA Method 624/8240 for project water analysis. The Idaho DEQ agreed with the request; however, Idaho DEQ requested that several of the water samples be split and analyzed

using both laboratory methods. Idaho DEQ would then compare the results and determine if Walla Walla could use EPA Method 624 in the future.

The PCE and TCE results reported in ug/L for the November sampling event are summarized as follows:

<u>DESCRIPTION</u>	<u>SAMPLE ID</u>	<u>LAB</u>	<u>DATE</u>	<u>PCE</u>	<u>TCE</u>
Monitor well 18	MW18	CTL	11/30/94	3.0	<0.5
Monitor well 9	MW9	CTL	11/30/94	930	5.9
Monitor well 9	MW9	HAL	11/30/94	1010	6.8
Duplicate well 9	MW10	HAL	11/30/94	1030	6.8
Monitor well 21	MW21	CTL	11/30/94	490	2.2
Monitor well 16	MW16	CTL	11/30/94	560	3.8
Monitor well 16	MW16	HAL	11/30/94	690	4.2
Pumping well 1	WP1	CTL	12/01/94	240	2.0
Pumping well 2	WP2	CTL	12/01/94	89	0.6
Pumping well 3	WP3	CTL	12/01/94	190	1.7
Combined Influent	WP-123I	CTL	12/01/94	190	1.3
Combined Effluent	WP-123E	CTL	12/01/94	1.5	<0.5
Combined Effluent	WP-123E	HAL	12/01/94	1.0	<0.5
Trip Blank	TB	CTL	11/30/94	<0.5	<0.5
Equipment Blank	EB	CTL	12/01/94	<0.5	<0.5

Figure 5 - Monitoring Well PCE Concentrations, identifies the well locations and depicts the November 1995 PCE concentrations for each well. Figure 6 - Pumping Well PCE Concentration Trends; shows the quarterly trends of PCE concentrations in each of the pumping wells since system start-up. The laboratory reports and chain of custody forms are in Appendix A. The data validation and quality assurance review is contained in Appendix B.

A historical summary of past quarterly sampling events is shown in Table 4 - Quarterly PCE Concentrations from Walla Walla Wells. The November 1994 PCE concentrations were significantly lower than the August 1994 levels in all wells except MW9. For the last two years PCE concentrations in MW 9 have varied between 700 ug/L and 1700 ug/L. Although the November MW9 result is slightly higher than the August result, the November value of 930 ug/L is lower than the May 1994 concentration of 1100 ug/L. MW9 is located between pumping wells WP2 and WP3 and may be at a point of groundwater stagnation. The WP2 down time may have influenced the November MW9 value. PCE concentrations in MW9 have varied from 130 ug/L to 1680 ug/L since system start up.

The Third Quarter PCE result for MW18 was 3 ug/L. MW 18 has yielded PCE concentrations below the project clean up level of 10 ug/L since November of 1992. CWEC plans to request a reduction in the sampling frequency of MW 18 to once per year after the year-end Fourth Quarter sampling event. The groundwater in the area of MW18, as measured by MW18, has been consistently below the remediation target of 10 ug/L or less.

4.0 PCE AIR EMISSIONS AND AIR PERMIT REPORTING REQUIREMENTS

4.1 Air Permit Requirements

The Idaho Permit to Construct an Air Pollution Emitting Source requires Walla Walla to monitor the air stripper operation and to report monitoring results to the Idaho Air Quality Bureau. The treatment system monitoring reports are to include:

- (a) flow rates from each of the remediation wells and the air stripper discharge (gallons per minute - gpm)
- (b) PCE content from each of the remediation wells and the discharge, expressed in both pounds per hour (pph) and parts per million (or milligram per liter - mg/L)
- (c) PCE emissions to the atmosphere expressed in both pph and ppm
- (d) a cumulative graph of the air stripper operation which depicts PCE emissions to the atmosphere vs. time

4.2 Treatment System Flow Rates

Estimated weekly flow rates for the pumping wells and the combined influent/effluent for the Fifth Year are presented in Table 5 - Weekly Flow Rates - WP1, WP2, WP3 and System Effluent. The average system flow rate for this quarter was approximately 137 gpm. However, with WP2 fully operational, the system was operating at a flow rate of 232 gallons per minute during the Third Quarter sampling event. Pumping well WP2 was repaired and back in service one day prior to the quarterly sampling of the treatment system. The PCE air emission rate calculated for the Third Quarter is a slight over estimate of the actual quarterly average emission rate due to the higher one day flow rate during the sampling event. Figure 7 - Weekly System Effluent Flow Rates, shows the weekly air stripper effluent in gallons per hour plotted for each week of operation.

4.3 PCE Concentrations in Pumping Wells

Flow rates and PCE concentrations for each of the pumping wells, the influent, and effluent for each quarterly sampling event are summarized in Tables 6 through 10 - Quarterly PCE Concentrations and Flow Rates; WP1; WP2; WP3; WP123Influent and WP123Effluent. The November 1994 PCE concentration for WP-1 was 300 ug/L; WP-2 was 89 ug/L; and WP-3 was 190 ug/L. These concentrations are significantly lower than those measured in the pumping wells during the Second Quarter of the Fifth Year (August 1994).

Tables 6 through 10 present the PCE content in the groundwater in both pph and ppm. The PCE content expressed in pph is calculated based on the flow rates of the pumping wells and the effluent at the time of the quarterly sampling event and the associated PCE concentrations detected in the influent and effluent samples.

4.4 PCE Emissions to the Atmosphere

PCE emissions from the air stripper to the atmosphere, based on influent and effluent PCE concentrations and the effluent flow rate, are presented in Table 11 - Quarterly PCE Air Emissions. The Walla Walla air permit limits PCE emissions to less than 0.25 pounds per hour (pph). This requirement has been met for all sampling events since system startup. Figure 8 - PCE Air Emissions Since Startup shows the air strippers historical PCE air emissions in pounds per hour. The November 1994 emission rate has been calculated as 0.0219 pph. This emission rate is 8.76% of the allowable emission rate.

5.0 DISCUSSION

The Walla Walla Westpark groundwater remediation system operated continuously during the Third Quarter except for three days during system maintenance and four days during construction in the South Slough. New wiring was installed to WP2 and a new effluent flow meter was installed. Monitoring wells MW11 and MW14 were converted to flush mount type well completions. Approximately 18 million gallons of PCE contaminated groundwater were treated during the Third Quarter of the Fifth Year. The Third Quarter Fifth Year treatment volume was 1.8 million gallons more than the Second Quarter.

Third Quarter area groundwater levels were approximately 2 feet lower than Second Quarter levels. The November depths represent a low to moderate seasonal groundwater elevation. Third Quarter PCE concentrations were down significantly from the Second Quarter in all corrective action monitoring wells except MW9. Monitoring well MW18 once again tested below the PCE clean up target of 10 ug/L. The treatment system discharge to the South Slough was 1.5 ug/L PCE which is below the 10 ug/L PCE discharge limit established in the Consent Order.

PCE emissions to the atmosphere were determined to be 0.0219 pounds per hour which is within permit requirements and approximately 8.76% of the allowable limit. Treatment volumes are expected to increase during the Fourth Quarter of the Fifth Year due to the repair of pumping well WP2 and a reduction in the system on and off cycling.

Third Quarter inspections, maintenance and monitoring were completed to operate the remediation system in compliance with all permits, licenses, and Consent Order conditions. The Idaho DEQ was contacted by CWEC when the system was taken off line for repairs and when a new laboratory water analysis method was proposed.

TABLES

TABLE - 1
GROUNDWATER TREATMENT SUMMARY
THIRD QUARTER - FIFTH YEAR

(thousands of gallons)

DATE	WEEK #	WP-1	WP-1	WP-2	WP-2	WP-3	WP-3	PERIOD	CUM.
		PERIOD	CUM.	PERIOD	CUM.	PERIOD	CUM.	TOTAL	TOTAL
03-09-94	209	1709.76	115854.38	1206.89	140207.00	2112.05	108596.47	5028.70	364659.00
03-16-94	210	760.96	116615.34	224.48	140431.48	916.96	109513.43	1902.40	366561.40
04-05-94	213	0.00	116615.34	0.00	140431.48	0.00	109513.43	0.00	366561.40
04-26-94	216	0.00	116615.34	0.00	140431.48	0.00	109513.43	0.00	366561.40
05-10-94	218	0.00	116615.34	0.00	140431.48	0.00	109513.43	0.00	366561.40
06-01-94	221	6277.06	122892.40	4178.29	144609.77	8799.44	118312.87	19254.80	385816.20
06-09-94	222	453.38	123345.78	437.41	145047.18	705.61	119018.48	1596.40	387412.60
06-28-94	225	1522.08	124867.86	1356.97	146404.15	2280.45	121298.93	5159.60	392572.20
07-11-94	227	961.45	125829.31	924.47	147328.62	1475.79	122774.72	3361.70	395933.90
07-20-94	228	445.89	126275.20	415.45	147744.07	660.46	123435.18	1521.80	397455.70
07-27-94	229	356.10	126631.30	307.43	148051.50	523.47	123958.65	1187.00	398642.70
08-08-94	231	406.61	127037.91	364.55	148416.05	630.95	124589.60	1402.10	400044.80
08-12-94	231	124.01	127161.92	114.57	148530.62	190.52	124780.12	429.10	400473.90
08-19-94	232	333.38	127495.30	281.75	148812.37	507.37	125287.49	1122.50	401596.40
08-22-94	233	107.32	127602.62	90.95	148903.32	165.53	125453.02	363.80	401960.20
09-16-94*	236	1813.46	129416.08	1663.38	150566.70	2776.46	128229.48	6253.80	408214.00
09-23-94	237	389.54	129805.62	389.54	150956.24	612.12	128841.60	1390.70	409604.70
09-30-94	238	211.68	130017.30	111.60	151067.84	297.60	129139.20	620.00	410224.70
10-03-94#	239	57.09	130074.39	30.21	151098.05	80.60	129219.80	167.90	410392.60
10-10-94@	240	390.40	130464.79	0.00	151098.05	561.80	129781.60	952.20	411344.80
10-12-94	240	170.64	130635.43	0.00	151098.05	255.96	130037.56	426.60	411771.40
10-17-94	241	487.83	131123.26	0.00	151098.05	673.67	130711.23	1161.50	412932.90

TABLE - 1 (cont'd)
GROUNDWATER TREATMENT SUMMARY
THIRD QUARTER - FIFTH YEAR

(thousands of gallons)

DATE	WEEK #	WP-1 PERIOD	WP-1 CUM	WP-2 PERIOD	WP-2 CUM	WP-3 PERIOD	WP-3 CUM	PERIOD TOTAL	CUM TOTAL
10-18-94	241	81.22	131204.48	0.00	151098.05	116.88	130828.11	198.10	413131.00
10-19-94	241	82.37	131286.85	0.00	151098.05	118.53	130946.64	200.90	413331.90
10-25-94	242	564.90	131851.75	0.00	151098.05	812.90	131759.54	1377.80	414709.70
10-28-94	242	169.28	132021.03	0.00	151098.05	253.92	132013.46	423.20	415132.90
11-01-94	243	244.69	132265.72	0.00	151098.05	352.11	132365.57	596.80	415729.70
11-04-94	243	125.58	132391.30	0.00	151098.05	180.72	132546.29	306.30	416036.00
11-09-94	244	130.54	132521.83	0.00	151098.05	222.26	132768.56	352.80	416388.80
11-11-94	244	43.43	132565.27	0.00	151098.05	70.87	132839.42	114.30	416503.10
11-13-94+	245	0.00	132565.27	0.00	151098.05	0.00	132839.42	0.00	416503.10
11-18-94	245	1034.29	133599.56	0.00	151098.05	1428.30	134267.72	2462.59	418965.69
11-21-94	246	280.88	133880.44	0.00	151098.05	439.33	134707.05	720.21	419685.90
11-23-94	246	171.91	134052.35	0.00	151098.05	280.49	134987.54	452.40	420138.30
12-01-94	247	908.82	134961.17	0.00	151098.05	1110.78	136098.32	2019.60	422157.90

* Flow calculations from this date on performed by CWEC

Century West Engineering Corp. retained to monitor and maintain the treatment system

@ WP2 taken off line due to bad electrical leg, restarted on 11/30/94, estimated flow could not be calculated

+ System down this period due to downstream construction project on South Slough

TABLE 2
FIFTH YEAR OPERATION OVERVIEW

FIRST QUARTER

Month of operation	Approx. Volume Treated	Repairs/Adjustments/Comments	Dates
March 1994	10,267,000		
April 1994	8,936,000	-Pumping Well WP2 production decreasing	
May 1994	6,982,000	-First Quarter Sample Event for Fifth Year -WP2 should be redeveloped to increase flow rate	June 1
	Total: 26,185,000		

SECOND QUARTER

Month of operation	Approx. Volume Treated	Repairs/Adjustments/Comments	Dates
June 1994	6,756,000	-WP2 redeveloped to increase flow rate -Effluent flow meter nonfunctional for undetermined amount of time -Effluent flow meter now functional -Overall cleaning and maintenance	
July 1994	6,070,500	-System intermittently operating -Adjusted influent and effluent valves -System operational again -Overall cleaning and maintenance	
August 1994	5,148,058	-Second Quarter Sample Event for Fifth Year	August 25
	Total: 17,974,558		

TABLE 2 (cont'd)
FIFTH YEAR OPERATION OVERVIEW

THIRD QUARTER

Month of operation	Approx. Volume Treated	Repairs/Adjustments/Comments	Dates
September 1994	6,014,540		
October 1994	5,005,000	-Century West Engineering retained to monitor and operate system	October 3
		-System shutdown due to low flows and intermittent cycling of system	October 3
		-Well sub-contractor found bad wiring in WP2	October 4
		-System restart on two wells (WP1 and WP3)	October 7
		-MW-14 elevation change due to construction in area, made flush mount by Huntingdon	October 8
		-Scheduled WP2 for rewiring	
November 1994	6,428,200	-Discovered effluent flow meter going bad	October 12
		-Trimmed overgrowth around system, steam cleaned pad and overall cleaning and maintenance	October 19
		-Cut protective casing down on MW-11 to make flush mount for construction purposes in area	
November 1994	6,428,200	-System shut down for construction work on South Slough	November 13
		-Replaced effluent flow meter and restarted system	November 18
		-Trenched ditch for new power line to WP2	November 22
		-Placed conduit and installed power line to WP2	November 23
		-WP2 placed back on line, system operating with three wells	November 30
		-Third Quarter Sample Event for Fifth Year	November 30
	Total: 17,447,740		December 1

TABLE 3
QUARTERLY GROUNDWATER ELEVATIONS
FIFTH YEAR

			06/01/94	08/25/94	11/30/94
Monitoring Well ID:	HR1	Depth to Groundwater	13.09	12.78	NA
Reference Elevation:	2693.24	Groundwater Elevation	2680.15	2680.46	NA
Monitoring Well ID:	WP1	Depth to Groundwater	20.06	18.18	23.06
Reference Elevation:	2690.15	Groundwater Elevation	2670.09	2671.97	2667.09
Monitoring Well ID:	WP2	Depth to Groundwater	27.22	22.39	24.60
Reference Elevation:	2690.16	Groundwater Elevation	2662.94	2667.77	2665.56
Monitoring Well ID:	WP3	Depth to Groundwater	17.50	16.04	20.19
Reference Elevation:	2690.71	Groundwater Elevation	2673.21	2674.67	2670.52
Monitoring Well ID:	3	Depth to Groundwater	12.16	11.95	14.62
Reference Elevation:	2692.15	Groundwater Elevation	2679.99	2680.20	2677.53
Monitoring Well ID:	9	Depth to Groundwater	12.52	12.36	14.51
Reference Elevation:	2691.19	Groundwater Elevation	2678.67	2678.83	2676.68
Monitoring Well ID:	10	Depth to Groundwater	10.36	10.22	12.77
Reference Elevation:	2688.88	Groundwater Elevation	2678.52	2678.66	2676.11
Monitoring Well ID:	11	Depth to Groundwater	13.84	13.73	15.44
Reference Elevation:	2695.22	Groundwater Elevation	2681.38	2681.49	2679.78
Monitoring Well ID:	14 *	Depth to Groundwater	12.57	12.54	12.18
Reference Elevation:	2689.85	Groundwater Elevation	2679.43	2679.46	2677.67
Monitoring Well ID:	16	Depth to Groundwater	12.85	12.73	14.95
Reference Elevation:	2692.79	Groundwater Elevation	2679.94	2680.06	2677.84
Monitoring Well ID:	18	Depth to Groundwater	14.04	13.90	15.87
Reference Elevation:	2694.60	Groundwater Elevation	2680.56	2680.7	2678.73
Monitoring Well ID:	19	Depth to Groundwater	9.51	9.39	12.00
Reference Elevation:	2688.73	Groundwater Elevation	2679.22	2679.34	2676.73
Monitoring Well ID:	20R	Depth to Groundwater	10.80	10.70	12.70
Reference Elevation:	2690.32	Groundwater Elevation	2679.52	2679.62	2677.62
Monitoring Well ID:	21	Depth to Groundwater	12.25	12.11	14.32
Reference Elevation:	2692.16	Groundwater Elevation	2679.91	2680.05	2677.84

TABLE 3 (cont'd)
QUARTERLY GROUNDWATER ELEVATIONS
FIFTH YEAR

			06/01/94	8/25/94	11/30/94
Monitoring Well ID:	22	Depth to Groundwater	16.19	16.28	CLOSED
Reference Elevation:	2697.86	Groundwater Elevation	2681.67	2681.58	CLOSED
Monitoring Well ID:	23	Depth to Groundwater	18.73	18.55	19.84
Reference Elevation:	2701.10	Groundwater Elevation	2682.37	2682.55	2681.26
Monitoring Well ID:	26**	Depth to Groundwater	NA	NA	12.12
Reference Elevation:	2689.57	Groundwater Elevation	NA	NA	2677.45
Monitoring Well ID:	DEQ-WP	Depth to Groundwater	14.64	14.11	NA
Reference Elevation:	2697.27	Groundwater Elevation	2682.63	2683.16	NA
Monitoring Well ID:	DEQ-WP	Depth to Groundwater	16.79	16.67	NA
Reference Elevation:	2699.14	Groundwater Elevation	2682.35	2682.47	NA
Monitoring Well ID:	DEQ-WP	Depth to Groundwater	17.96	17.15	NA
Reference Elevation:	2700.82	Groundwater Elevation	2682.86	2683.67	NA
Monitoring Well ID:	DEQ-WP	Depth to Groundwater	21.15	20.80	NA
Reference Elevation:	2704.02	Groundwater Elevation	2682.87	2683.22	NA

-Huntingdon monitoring wells no longer available for gauging as they were closed in the fall of 1994

* Elevation adjusted for MW 14 due to construction in area done during fifth year third quarter - new reference elevation obtained 2/8/94; 2689.85 ft MSL

** Elevation obtained for MW-26 on 2/8/94; 2689.57 ft MSL

- Elevations checked for MW-3, MW-20R and found to be OK 2/8/94

TABLE 4
QUARTERLY PCE CONCENTRATIONS FROM WALLA WALLA WELLS
(ug/L)

MONTH/YEAR	OPERATION YEAR	WB1	WP2	WP3	9	11	16	18	19	20	20R	21	EB
	QUARTER												
Oct. 89	1st Year 1st Quarter	1100	500 d800	2400	1000	15.6	183	190	1.5	9.5	-	+3.2	
April 90	1st Year 2nd Quarter	379	**	1260	1090	3.6 d4.0	#176	74.9	1.1	22.5	-	44.9	<1.0
July 90	1st Year 3rd Quarter	290	s320	+400 s820	763	5.9	109	145 d205	<1.0	N/S	-	30.8	<1.0
Oct. 90	1st Year 4th Quarter	660	780	1220	*850 *d980	5.1	50	170	<0.5	N/S	^50	17.2	<0.5
Feb. 91	2nd Year 1st Quarter	726 s428	817 s345	1110 s963	1040	2.6	13.2	81.5 d78.6	<0.5	N/S	9.9	50.7	<0.5
May 91	2nd Year 2nd Quarter	290	**	1090	910	4.8	39	50	<0.5	N/S	1.8	134	<0.5
Aug. 91	2nd Year 3rd Quarter	660	450	730	960	7.5	116	71	<0.5	N/S	0.6	48 @d34	<0.5
Nov. 91	2nd Year 4th Quarter	654	620	409	714	5.6	79.2	30.2 d30.2	<0.5	N/S	1.8	39.7	<0.5
Feb. 92	3rd Year 1st Quarter	340	350	520	360 d340	***	113	31.5	***	N/S	***	85	<0.5
May 92	3rd Year 2nd Quarter	580	600	860	190	***	100	17	***	N/S	***	310 d380	<0.5
Aug. 92	3rd Year 3rd Quarter	300	410	490	130	11.2	100	15.4 d12.0	<0.5	N/S	9.4	70	<0.5
Nov. 92	3rd Year 4th Quarter	++105	++45	590	870	11	+++	5.3	***	N/S	***	500	<0.5
May 93	4th Year 1st Quarter	170	730	460	1680 d1440	0.9	1.9	3.4	***	N/S	***	1050	1.4
Aug. 93	4th Year 2nd Quarter	300	260	630	1380 d1420	3.5	700	5.7	<0.5	N/S	0.5	470	<0.5

TABLE 4 (cont'd)
QUARTERLY PCE CONCENTRATIONS FROM WALLA WALLA WELLS
(ug/L)

MONTH/YEAR	OPERATION YEAR	WP1	WP2	WP3	9	11	16	18	19	20	^20R	21	EB
	QUARTER												
Nov. 93	4th Year 3rd Quarter	290	450	510	1070 d1060	***	550	4.1	<0.5	N/S	***	540	<0.5
Feb. 94	4th Year 4th Quarter	390	390	550	610	***	390	3.4	***	N/S	***	900 d1060	<0.5
May 94	5th Year 1st Quarter	230	500	300	1100	***	810	4.3	***	N/S	***	1240	<0.5
Aug. 94	5th Year 2nd Quarter	540	720	1350	800	1.7	1200 d1090	4.3	<0.5	N/S	0.8	920	<0.5
Nov. 94	5th Year 3rd Quarter	240	89	190	930 h1010 hd1030	***	560	3 Ld3.1	***	N/S	***	490	<0.5

SYMBOL DEFINITIONS FOR MONITORING WELLS PCE LEVELS TABLE

Notes:

- * = QA/QC flagged data - See Quarterly Data Validation Report.
- ** = Not required in Consent Order.
- *** = Conditionally dropped from quarterly sampling program; will be sampled annually.
- + = Results are inconsistent with the trends of this well. Lab or sampling error is likely.
- ++ = Results are inconsistent with the trends of this well. Inconsistencies are most likely because pumping wells WP1 and WP2 were not operating during sample event. Samples were collected without purging the wells.
- +++ = Well 16 was dry. No sample was collected.
- ^ = Well #20 has been decommissioned; Replacement well is #20R located approximately 30 yards north of well #20.

= The Apr-90 values for wells 21 and 16 were reversed from those previously reported due to an apparent field error.

@ = Well #21 duplicate was outside the target RPD range of +/- 20%.

Data not recommended for rejection.

d = Duplicate sample

s = Sampled at stripper

N/S = Not sampled

h = Split sample analyzed by Hibbs Analytical Lab.

hd = Duplicate sample Analyzed by Hibbs Analytical Lab.

Ld = Laboratory duplicate

TABLE 5
WEEKLY FLOW RATES
WP1, WP2, WP3 and SYSTEM EFFLUENT
(gpm)

DATE	WEEK OF OPERATION	WP1	WP2	WP3	COMBINED EFFLUENT
03/09/94	209	81	57	100	238
03/16/94	210	94	27	113	234
*04/05/94	213	94	27	113	234
*04/26/94	216	94	27	113	234
*05/10/94	218	94	27	113	234
06/01/94	221	75	50	105	230
06/09/94	222	68	66	107	241
06/28/94	225	70	62	105	237
07/11/94	227	68	66	105	239
07/20/94	228	70	65	103	238
07/27/94	229	70	60	104	234
08/08/94	231	68	62	105	235
08/12/94	231	68	63	105	236
08/19/94	232	70	59	107	236
08/25/94	233	70	60	109	239
+09/16/94	236	50	46	77	173
09/23/94	237	39	39	62	140
09/30/94	238	21	11	29	61
**10/03/94	239	13	7	19	39
10/12/94	240	63	0	93	156
10/18/94	241	64	0	93	157
10/28/94	242	60	0	91	151
11/04/94	243	62	0	88	150
11/11/94	244	57	0	93	150
11/18/94	245	58	0	80	138
11/23/94	246	64	0	105	169
#12/01/95	247	77	61	94	232

* Estimated Values - Actual field measurements were not taken for these dates

** Century West Engineering Corp. retained to monitor and maintain project

+ Flow calculations from this date on performed by CWEC

WP2 back on line 11/30/94

TABLE 6
WP1-QUARTERLY PCE CONCENTRATIONS and FLOW RATES

DATE	DAY OF OPERATION	FLOW RATE gpm	PCE ug/L	PCE ppm	PCE pph
03/15/90	4	69	800	0.800	0.0272
03/16/90	5	68	920	0.920	0.0309
03/17/90	6	68	980	0.980	0.0329
03/23/90	12	60	585	0.585	0.0173
03/30/90	19	58	876	0.876	0.0251
04/06/90	26	60	285	0.285	0.0084
04/13/90	33	62	212	0.212	0.0065
04/20/90	40	90	239	0.239	0.0106
04/25/90	45	81	300	0.300	0.0120
04/27/90	47	80	408	0.408	0.0161
07/20/90	131	0	290	0.290	*
10/24/90	227	0	660	0.660	*
02/06/91	333	81	726	0.726	0.0290
05/16/91	431	90	290	0.290	0.0129
08/07/91	514	89	660	0.660	0.0290
11/14/92	613	93	654	0.654	0.0300
02/26/92	717	98	340	0.340	0.0164
05/21/92	786	85	580	0.580	0.0243
08/25/92	898	83	300	0.300	0.0123
11/19/92	984	0	105	0.105	*
02/25/93	1082	81	73	0.073	0.0029
05/25/93	1171	83	170	0.170	0.0070
08/26/93	1264	78	300	0.300	0.0115
11/23/93	1353	76	290	0.290	0.0109
02/22/94	1443	92	390	0.390	0.0177
06/01/94	1542	75	230	0.230	0.0085
08/25/94	1627	71	540	0.540	0.0189
11/30/94	1722	77	300	0.300	0.0114

*WP1 not running - PCE pph can not be determined.

ppm = parts per million

pph = pounds per hour

TABLE 7
WP2-QUARTERLY PCE CONCENTRATIONS and FLOW RATES

DATE	DAY OF OPERATION	FLOW RATE gpm	PCE ug/L	PCE ppm	PCE pph
03/13/90	2	103	850	0.8500	0.0432
03/14/90	3	101	1080	1.0800	0.0538
03/15/90	4	103	1000	1.0000	0.0508
03/16/90	5	101	924	0.9240	0.0460
03/17/90	6	102	890	0.8900	0.0448
03/23/90	12	100	803	0.8030	0.0396
03/30/90	19	100	602	0.6020	0.0297
04/06/90	26	97	146	0.1460	0.0070
04/13/90	33	95	44	0.0440	0.0021
04/20/90	40	106	185	0.1850	0.0097
04/25/90	45	100	240	0.2400	0.0118
04/27/90	47	100	346	0.3460	0.0171
06/22/90	103	130	330	0.3300	0.0212
07/20/90	131	132	320	0.3200	0.0208
10/18/90	221	0	780	0.7800	*
02/06/91	333	111	817	0.8170	0.0447
05/16/91	431	93	**	0.0000	0.0000
08/07/91	514	96	450	0.4500	0.0213
11/14/91	613	89	620	0.6200	0.0272
02/26/92	717	56	350	0.3500	0.0097
05/21/92	786	90	600	0.6000	0.0266
08/25/92	898	90	410	0.4100	0.0182
11/19/92	984	0	45	0.0450	*
02/25/93	1082	55	99	0.0990	0.0027
05/25/93	1171	63	730	0.7300	0.0227
08/26/93	1264	80	260	0.2600	0.0103
11/23/93	1353	76	450	0.4500	0.0169
02/22/94	1443	81	390	0.3900	0.0156
06/01/94	1542	50	500	0.5000	0.0123
08/25/94	1625	60	720	0.7200	0.0213
11/30/94	1722	61	89	0.0890	0.0027

*WP2 Flow rate not taken - PCE pph cannot be determined.

**Not sampled

ppm = parts per million

pph = pounds per hour

TABLE 8
WP3 - QUARTERLY PCE CONCENTRATIONS and FLOW RATES

DATE	DAY OF OPERATION	FLOW RATE gpm	PCE ug/L	PCE ppm	PCE pph
03/14/90	3	63	1700	1.7000	0.0528
04/25/90	45	52	1040	1.0400	0.0267
04/27/90	47	51	1210	1.2100	0.0304
05/03/90	53	0	1050	1.0500	*
07/20/90	131	32	820	0.8200	0.0129
10/18/90	221	0	1220	1.2200	*
02/06/91	333	78	1111	1.1110	0.0428
05/16/91	431	86	1090	1.0900	0.0463
08/07/91	514	80	730	0.7300	0.0288
11/14/91	613	78	409	0.4090	0.0157
02/26/92	717	91	520	0.5200	0.0233
05/21/92	786	75	860	0.8600	0.0318
08/25/92	898	77	490	0.4900	0.0186
11/19/92	984	150	590	0.5900	0.0437
02/25/93	1082	94	570	0.5700	0.0264
05/25/93	1171	80	460	0.4600	0.0182
08/26/93	1264	92	630	0.6300	0.0286
11/23/93	1353	93	510	0.5100	0.0234
02/22/94	1443	81	550	0.5500	0.0220
06/01/94	1542	105	300	0.3000	0.0155
08/25/94	1625	109	1350	1.3500	0.0726
11/30/94	1722	94	190	0.1900	0.0088

*WP3 Flow rate not taken - PCE pph cannot be determined.

ppm = parts per million

pph = pounds per hour

TABLE 9
WP1,2,3 - INFLUENT
QUARTERLY PCE CONCENTRATIONS and FLOW RATES

DATE	DAY OF OPERATION	FLOW RATE gpm	PCE ug/L	PCE ppm	PCE pph
04/13/90	33	157	308	0.3080	0.02386
07/20/90	131	164	590	0.5900	0.04774
10/24/90	227	0	-	-	-
*02/06/91	*332	*270	*765	*0.7650	*0.1019
05/16/91	431	269	430	0.4300	0.05707
08/07/91	514	265	640	0.6400	0.08368
11/14/91	613	260	474	0.4740	0.06080
02/26/92	717	245	410	0.4100	0.04956
05/21/92	786	250	420	0.4200	0.05181
08/25/92	898	250	390	0.3900	0.04811
11/19/93	984	150	400	0.4000	0.02960
02/25/93	1082	230	310	0.3100	0.03518
05/25/93	1171	244	440	0.4400	0.05297
08/26/93	1264	250	460	0.4600	0.05674
11/23/93	1353	245	420	0.4200	0.05077
02/22/94	1443	254	370	0.3700	0.04637
06/01/94	1542	230	330	0.3300	0.03745
08/25/94	1625	240	610	0.6100	0.07223
11/30/94	1722	232	190	0.1900	0.02175

*All flow rates from this date on have been adjusted according to the effluent meter. This gauge provides a more accurate flow rate.

ppm = parts per million

pph = pounds per hour

TABLE 10
WP1,2,3 - EFFLUENT
QUARTERLY PCE CONCENTRATIONS and FLOW RATES

DATE	DAY OF OPERATION	FLOW RATE gpm	PCE ug/L	PCE ppm	PCE pph
04/13/90	33	168	7.2	0.0072	0.00060
07/20/90	131	180	^8.2	0.0082	0.00073
10/24/90	227	133	3.6	0.0036	0.00024
*02/06/91	*332	*270	*14.8	*0.0148	*0.0020
03/05/91	359	266	4.3	0.0043	0.00056
05/16/91	431	268	3.4	0.0034	0.00045
08/07/91	514	265	4.7	0.0047	0.00061
11/14/91	613	260	3.3	0.0033	0.00042
02/26/92	717	245	2.5	0.0025	0.00030
05/21/92	786	250	3.7	0.0037	0.00046
08/25/92	898	250	3.4	0.0034	0.00042
11/19/92	984	150	0.5	0.0005	0.00004
02/25/93	1082	230	0.9	0.0009	0.00010
05/25/93	1171	244	2.3	0.0023	0.00028
08/26/93	1264	250	3.2	0.0032	0.00039
11/23/93	1353	245	2.8	0.0028	0.00034
02/22/94**	1443	254	0.25	0.0003	0.00003
06/01/94	1542	230	2.1	0.0021	0.00024
08/25/94	1625	240	2.1	0.0021	0.00025
11/30/94	1722	232	1.5	0.0015	0.00017

*All flow rates from this date on have been adjusted according to the effluent meter. This gauge provides a more accurate flow rate.

^Attempts to phase in WP3.

**Effluent concentration is a midpoint value between 0.0 ug/L and 0.5 ug/L
 - actual reported concentration is <0.5 ug/L

ppm = parts per million

pph = pounds per hour

TABLE 11
QUARTERLY PCE AIR EMISSIONS

DATE	DAY OF OPERATION	FLOW RATE EFFLUENT gpm	PCE INFLUENT mg/L	PCE EFFLUENT mg/L	EMISSION SOURCE STRENGTH g/sec	PCE EMISSION ppm	PCE EMISSION pph
02/06/91	332	270	0.7650	0.0148	0.0128	0.4896	0.1014
#03/05/91	359	266	0.9700	0.0043	0.0162	0.6209	0.1285
05/15/91	431	269	0.4300	0.0034	0.0072	0.2774	0.0574
08/07/91	514	265	0.6400	0.0047	0.0106	0.4069	0.0842
11/14/91	613	260	0.4740	0.0033	0.0077	0.2958	0.0612
02/26/92	717	225	0.4100	0.0027	0.0058	0.2215	0.0459
05/21/92	802	250	0.4200	0.0037	0.0066	0.2515	0.0521
08/25/92	898	250	0.3900	0.0034	0.0061	0.2336	0.0484
11/19/92	984	150	0.4000	0.0005	0.0038	0.1448	0.0300
02/25/93	1082	230	0.3100	0.0009	0.0045	0.1718	0.0356
05/25/93	1171	244	0.4400	0.0023	0.0067	0.2581	0.0534
08/26/93	1264	250	0.4600	0.0022	0.0072	0.2766	0.0573
11/23/93	1353	245	0.4200	0.0028	0.0064	0.2470	0.0511
02/22/94*	1443	254	0.3700	0.0003	0.0059	0.2270	0.0470
06/01/94	1542	230	0.3300	0.0021	0.0048	0.1823	0.0377
08/25/94	1625	240	0.6100	0.0021	0.0092	0.3526	0.0730
11/30/94	1722	232	0.1900	0.0015	0.0028	0.1057	0.0219

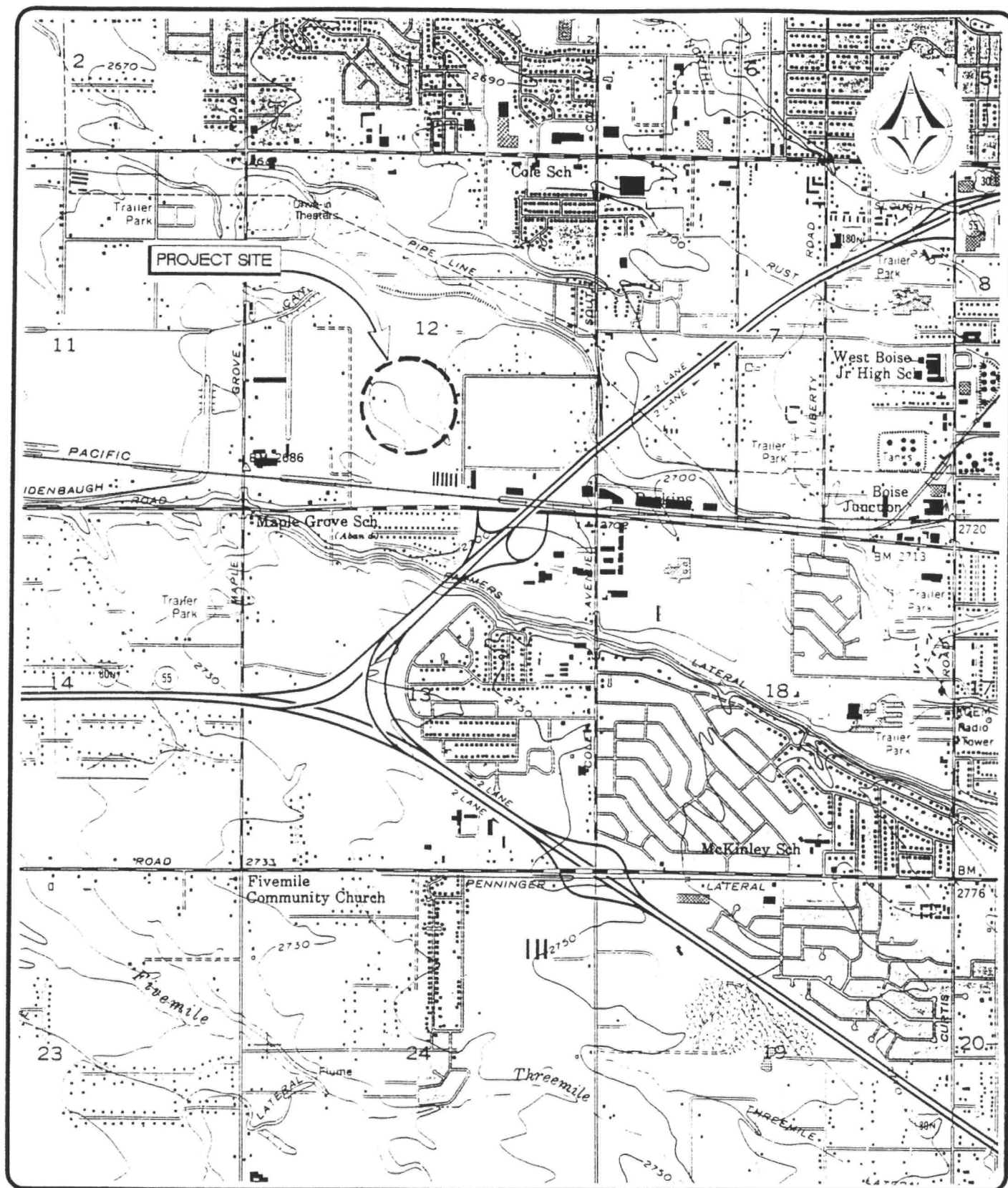
March 1991 re-sample result - The influent value is an average of PCE concentration for the Fourth Quarter.


* Effluent concentration is a midpoint value between 0.0 ug/L and 0.5 ug/L
- actual reported concentration is <0.5 ug/L

ppm = parts per million

pph = pounds per hour

FIGURES




centurywest
 ENGINEERING CORPORATION
 4477 EMERALD STREET, SUITE B200
 BOISE, IDAHO 83706

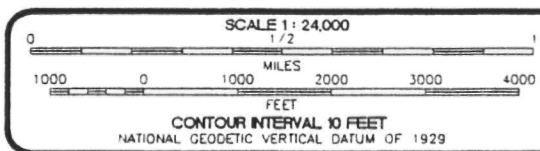
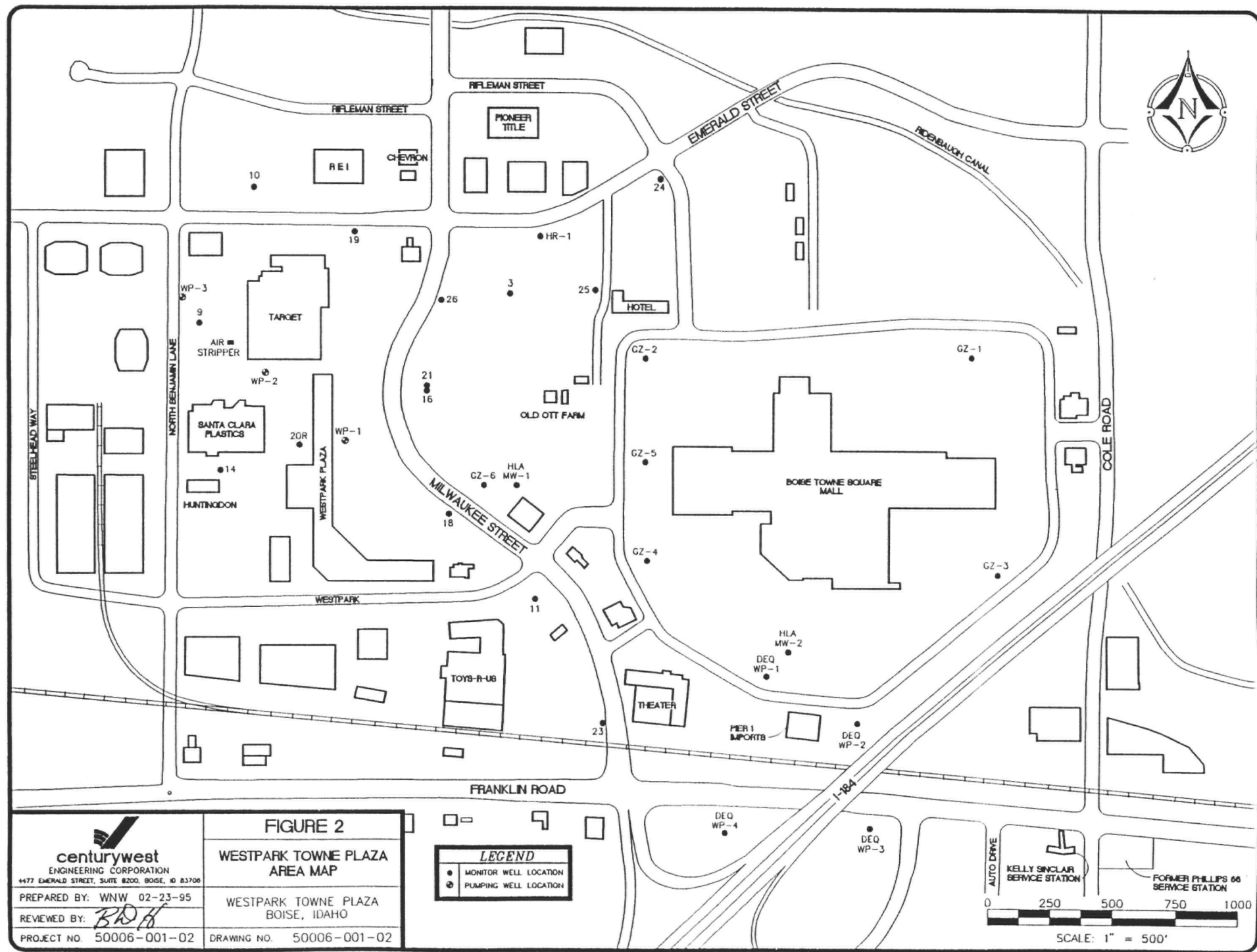


FIGURE 1
VICINITY MAP
 WESTPARK TOWNE PLAZA
 BOISE, IDAHO

DATE: 02-21-95	DRAWN BY: WNW	REVIEWED BY: <i>BBB</i>	PROJECT NUMBER: 50006-001-02
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centurywest
ENGINEERING CORPORATION
4477 EMERALD STREET, SUITE 8200, BOISE, ID 83706

PREPARED BY: WNW 02-23-95
REVIEWED BY: *BDH*
PROJECT NO. 50006-001-02

FIGURE 2
WESTPARK TOWNE PLAZA AREA MAP

WESTPARK TOWNE PLAZA
BOISE, IDAHO

DRAWING NO. 50006-001-02

LEGEND

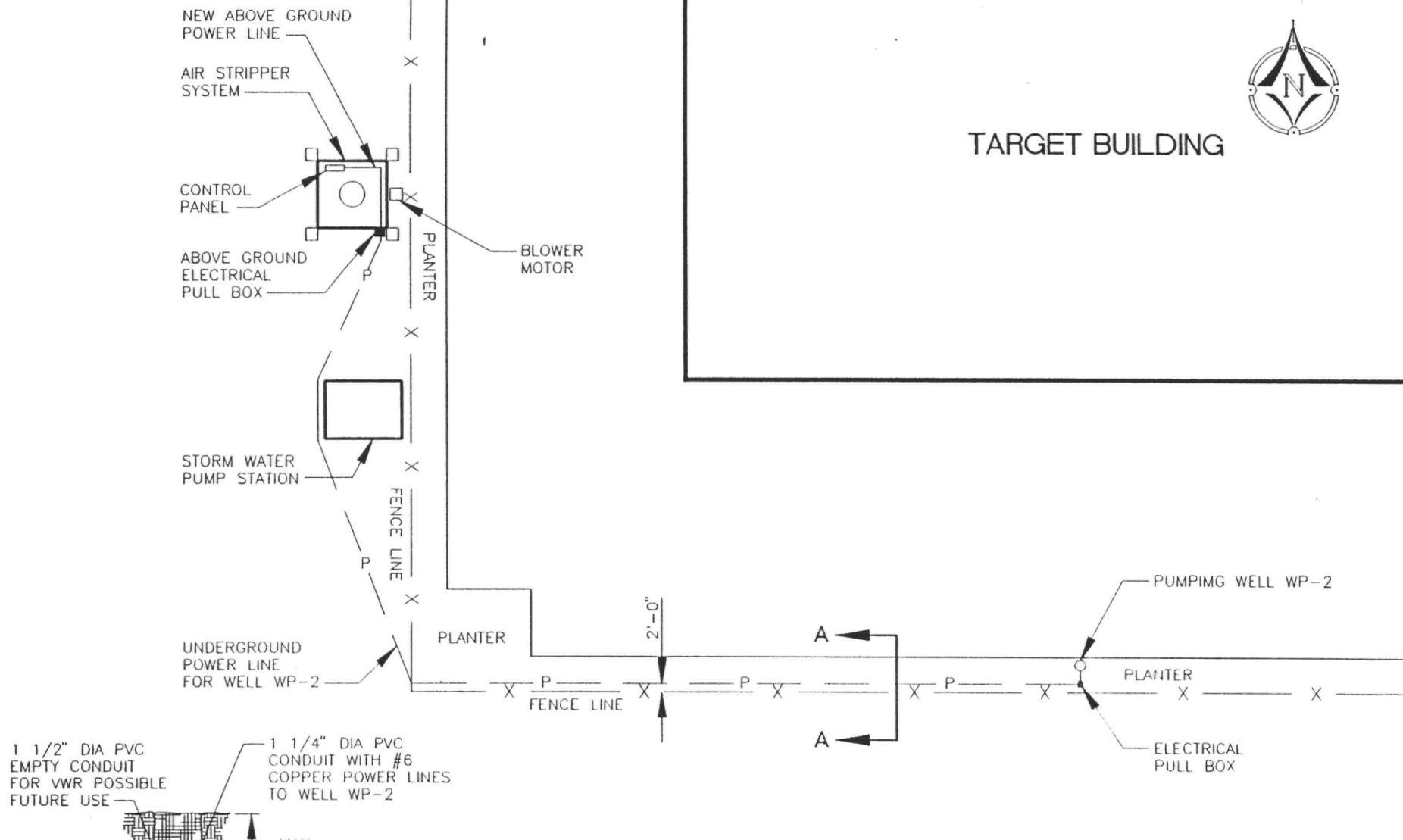
- MONITOR WELL LOCATION
- PUMPING WELL LOCATION

SCALE: 1" = 500'

0 250 500 750 1000

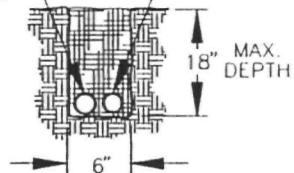
KELLY SINCLAIR SERVICE STATION

FORMER PHILLIPS 66 SERVICE STATION



1 1/2" DIA PVC
EMPTY CONDUIT
FOR VWR POSSIBLE
FUTURE USE

1 1/4" DIA PVC
CONDUIT WITH #6
COPPER POWER LINES
TO WELL WP-2



SECTION A-A
(NATIVE SOIL BACKFILL)


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4477 EMERALD STREET, SUITE B200
BOISE, IDAHO 83706



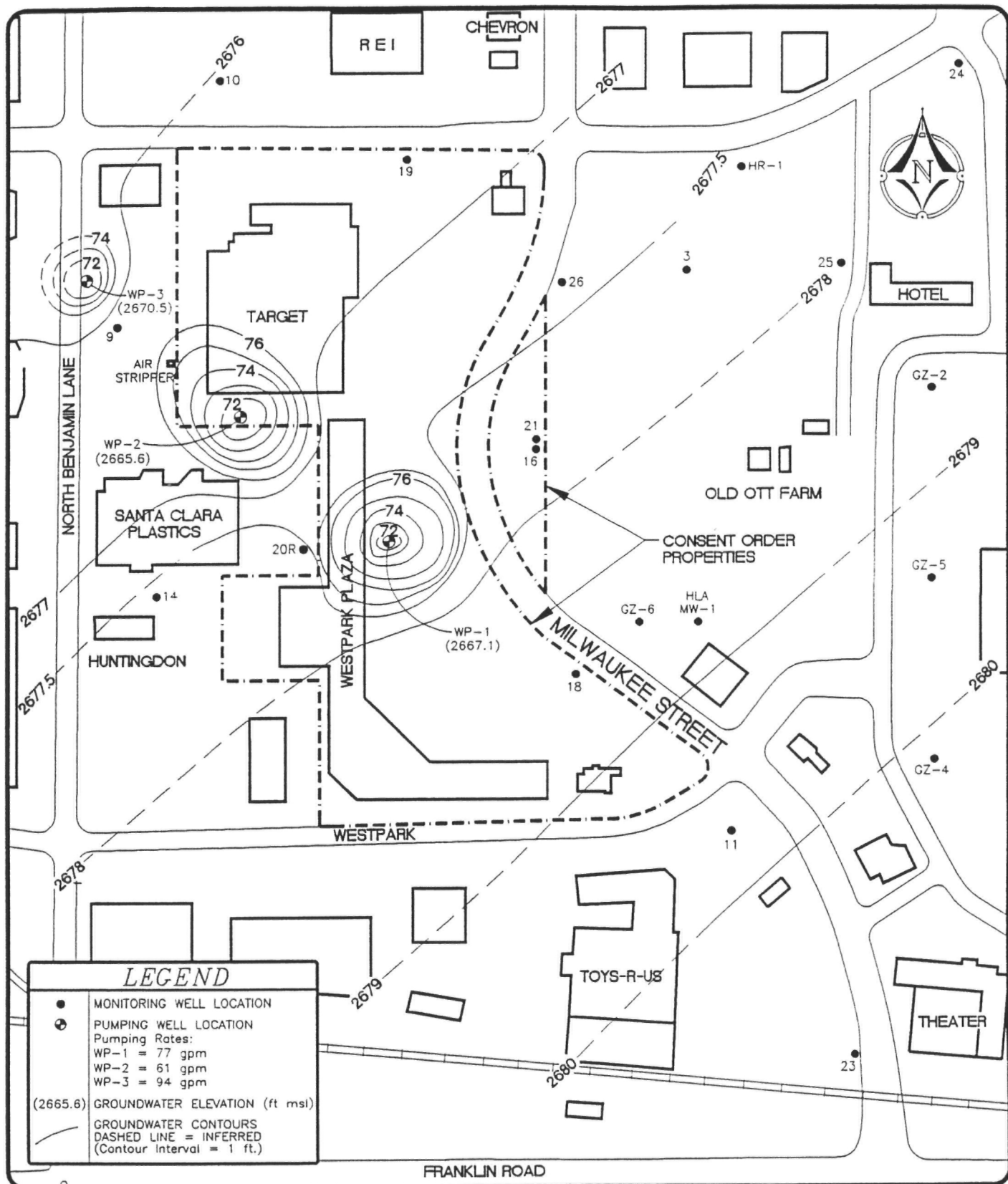
FIGURE 3
AS-BUILT REPLACEMENT WIRING
FOR WELL WP-2
WESTPARK TOWNE PLAZA
BOISE, IDAHO

DATE: 02-23-95

DRAWN BY: WNW

REVIEWED BY: *BDH*

PROJECT NUMBER: 50006-001-02



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150 0 150 300 450 600
FEET
SCALE 1:300

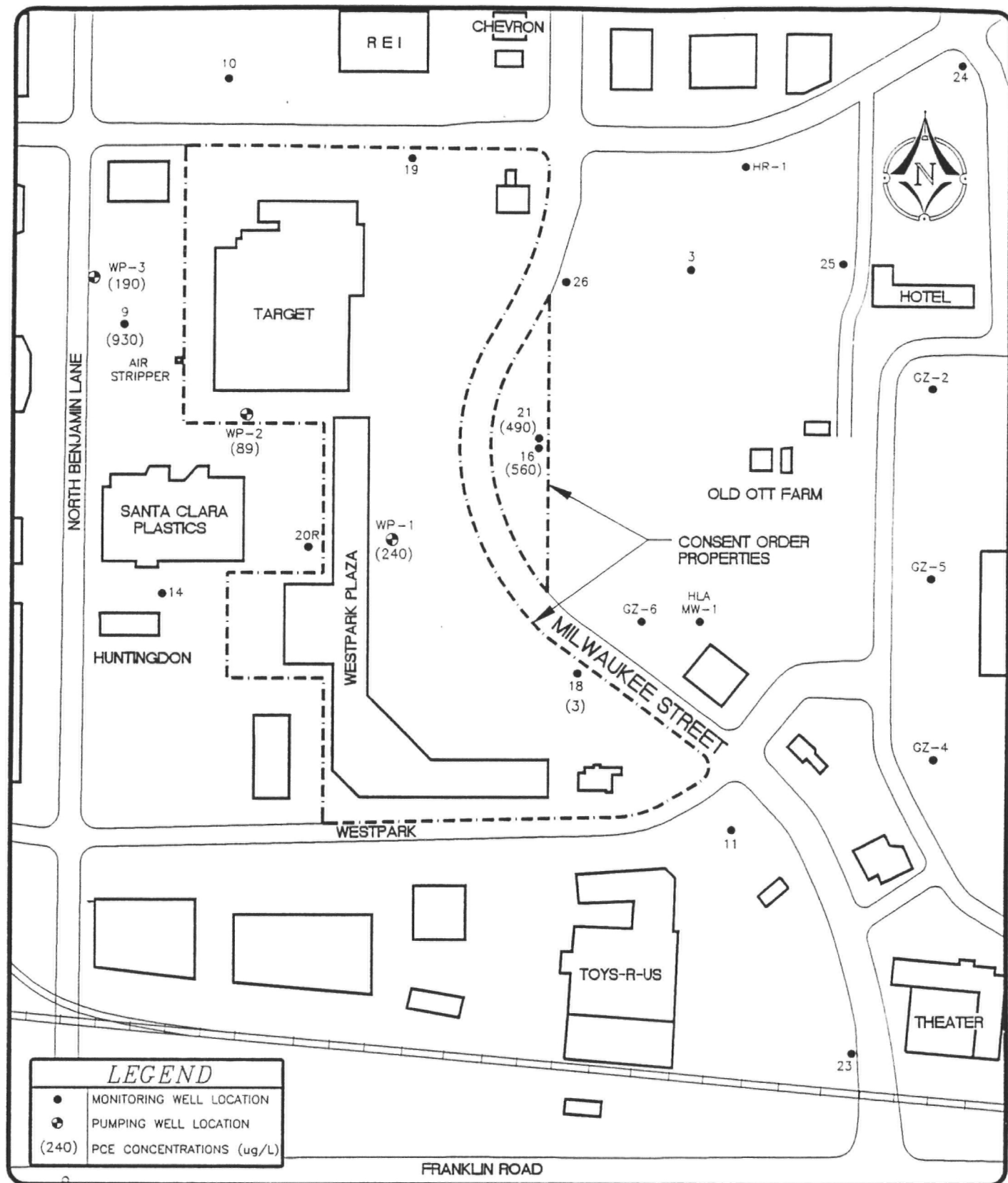
FIGURE 4
GROUNDWATER ELEVATION
CONTOUR MAP
NOVEMBER 30, 1994
WESTPARK TOWNE PLAZA
BOISE, IDAHO

DATE: 02-23-95

DRAWN BY: WNW

REVIEWED BY: *BWS*

PROJECT NUMBER: 50006-001-02



LEGEND

- | | |
|-------|---------------------------|
| ● | MONITORING WELL LOCATION |
| ⊙ | PUMPING WELL LOCATION |
| (240) | PCE CONCENTRATIONS (ug/L) |

FRANKLIN ROAD



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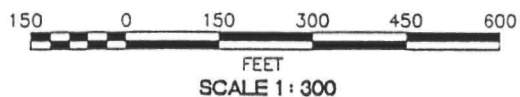


FIGURE 5
MONITORING WELL
PCE CONCENTRATIONS
NOVEMBER 30, 1994
WESTPARK TOWNE PLAZA
BOISE, IDAHO

DATE: 02-23-95

DRAWN BY: WNW

REVIEWED BY: BUL

PROJECT NUMBER: 50006-001-02

FIGURE 6
PUMPING WELL PCE CONCENTRATION TRENDS

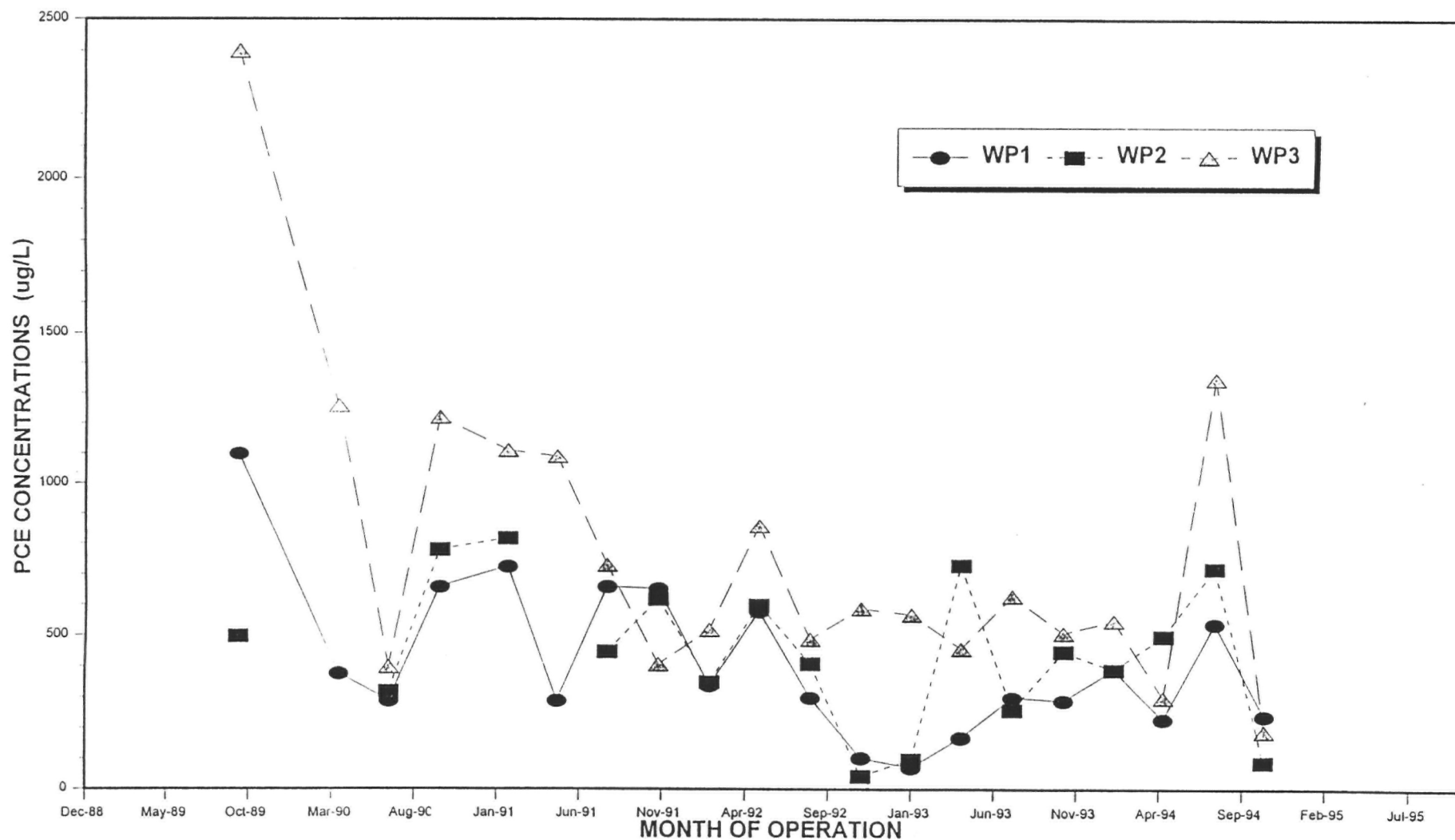


FIGURE 7
WEEKLY SYSTEM EFFLUENT FLOW RATES

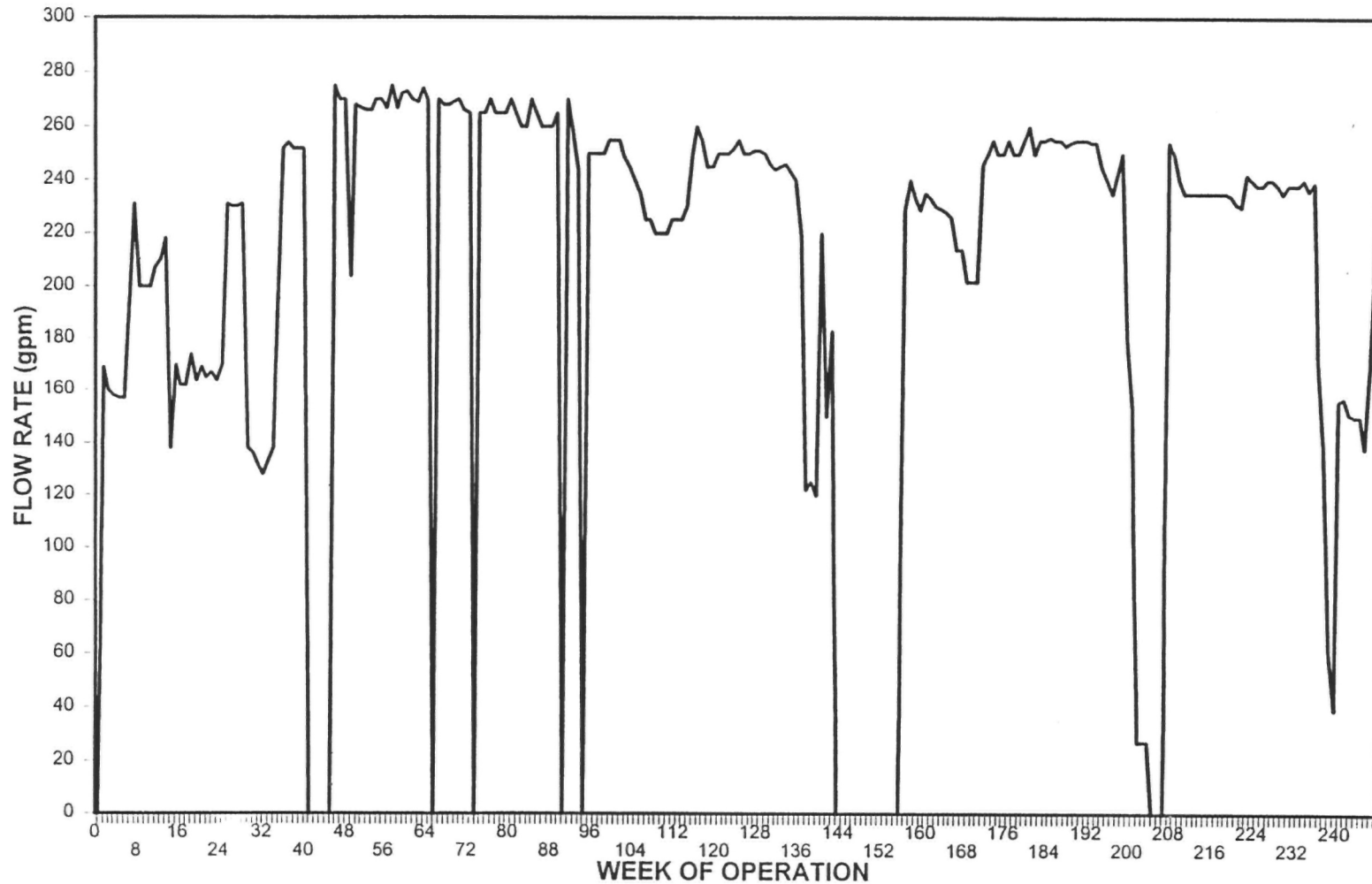


FIGURE 8
PCE AIR EMISSIONS SINCE STARTUP

